

A new species of *Cetema* Hendel with reference to the distribution of the genus

(Insecta, Diptera, Chloropidae)

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Cetema maroccana, spec. nov. is described from North Africa. Three centres of biodiversity of the genus *Cetema* in the holarctic region are discussed.

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Introduction

The genus *Cetema* Hendel belongs to the subfamily Chloropinae. *Cetema* is considered as a single genus within the genus group *Cetema* (Andersson 1972, Kanmiya 1984) or is included into the tribe Cetematini together with *Archechetema* Nartshuk and *Homalurooides* Sabrosky (Nartshuk 1983, 1987). In this paper *Archechetema* is considered only as a subgenus of *Cetema*. *Cetema* is a holarctic genus, 12 species being known from the Palaearctic and 2 species from the Nearctic region (Czerny & Strobl 1909, Becker 1910, Collin 1966, Duda 1933, Beschovski 1984, Ismay 1985). The genus *Cetema* deviates in the structure of the pregenital synsclerite and the male genitalia (epandrium) from all other genera of the subfamily Chloropinae. The pregenital synsclerite is enlarged in *Cetema* in contrast to the other Chloropinae with reduced synsclerite. The epandrium of most species of *Cetema*, except for species of the subgenus *Archechetema*, has additional long anterolateral processes under the surstyli. Origin and variation of these processes can be observed within the genus, because species from the Far East are more generalized and do not have these processes or have only small ones (Nartshuk 1976).

There are two centres of biodiversity within the genus *Cetema* in the Palaearctic region: Westpalaearctic and Eastpalaearctic (Fig. 1). The third centre is situated in the eastern part of the Nearctic region. These three centres correspond to three regions of nemoral biotas within the Holarctic region. Species of *Cetema* are not associated with trees. Larvae of *Cetema* are phytophagous, they live in shoots of grasses of the genera *Agrostis*, *Glyceria*, *Poa*, *Alopecurus* and some others. Most of the species are mesophilous, they occur on meadows, borders and clearings in forests. *C. bispinosa* Duda is the only hydrophilous species that occurs in wet places, their larvae live in shoots of *Glyceria triflora* (Korsh.).

Up to date the westpalaearctic species were known only from Europe. A new species which is described in this paper occurs in North Africa. The number of westpalaearctic species gradually decreases from west to east, and the number of eastern species increases again in the Eastpalaearctic region (Fig. 2). Eight species occur in the atlantic sector of the Palaearctic region: *C. paramyopina* Collin, *C. monticola* Becker, *C. maroccana*, spec. nov., *C. transversa* Collin, *C. neglecta* Tonnoir, *C. elongata* Meigen, *C. cereris* Fallén, *C. myopina* Loew. I consider *C. similis* Ismay, 1985 a synonym of *C. elongata* Meigen (Nartshuk 1991). *C. obliqua* Beschovski, 1984 is very likely also a synonym of *C. elongata*. Dr. M. v. Tschirnhaus (pers. comm.) considers this species a synonym of *C. elongata*. Distances of ranges of these species eastwards are very different. Two former species, *C. paramyopina* and *C. maroccana*, are not recorded eastward of the atlantic sector, two related species *C. transversa* and *C. monticola* – eastwards to central Europa, *C. neglecta* – eastwards of Moscow district, *C. elongata* – eastwards to Ural moun-

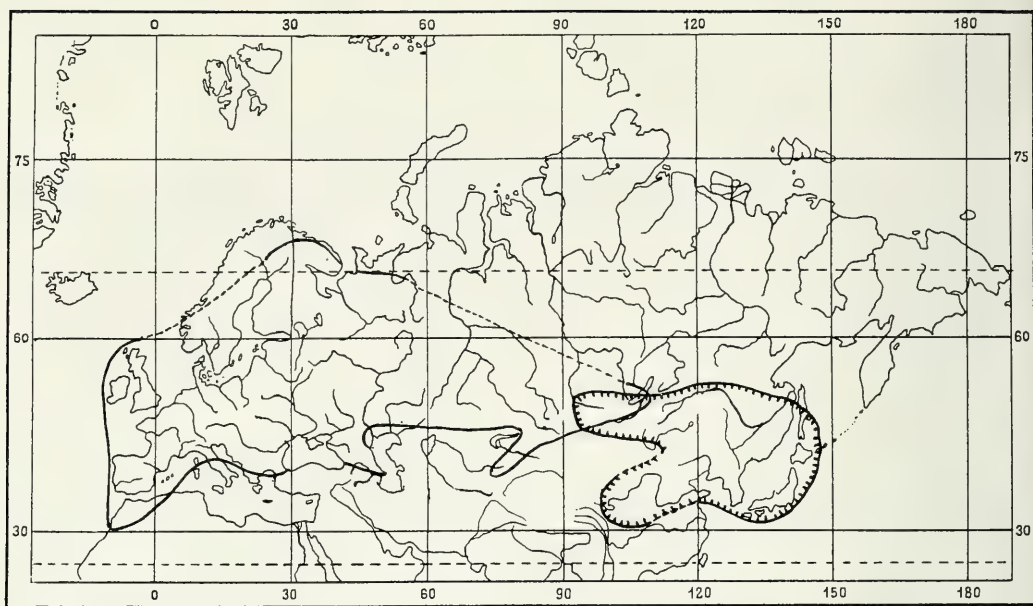


Fig. 1. Ranges of west- (simple line) and east- (line with strokes) palaeartic species groups of *Cetema*.

tains, *C. myopina* – eastwards to the Baikal lake. Only *C. cereris* is a transpalaeartic species. Similar patterns of distribution – but in the opposite direction – are known for the eastpalaeartic species. The number of species decreases westwards. *C. necopinata* is recorded from Japan, southern Kuril islands and Primorsky province of Russia, *C. sulcifrons* Duda is known westwards to Szechwan in China (as the subspecies *nigritarsis* Duda) and East Aimak in Mongolia, and *C. bispinosa* Duda is recorded westwards to the Yenisey river (Figs 1, 2). *C. cereris* has the widest range and occurs from Great Britain to Sakhalin and in Europe northwards to the Polar circle (Rovaniemi in Finland) by the nominate subspecies *C. c. cereris*. In the south of far east of Russia and Japan this subspecies is replaced by the subspecies *C. cereris orientalis* Nartshuk. Males of this subspecies lack the long hairs on the fore tibia. The most northern record of *Cetema* in Europe belongs to *C. elongata*: Murmansk, Kola peninsula.

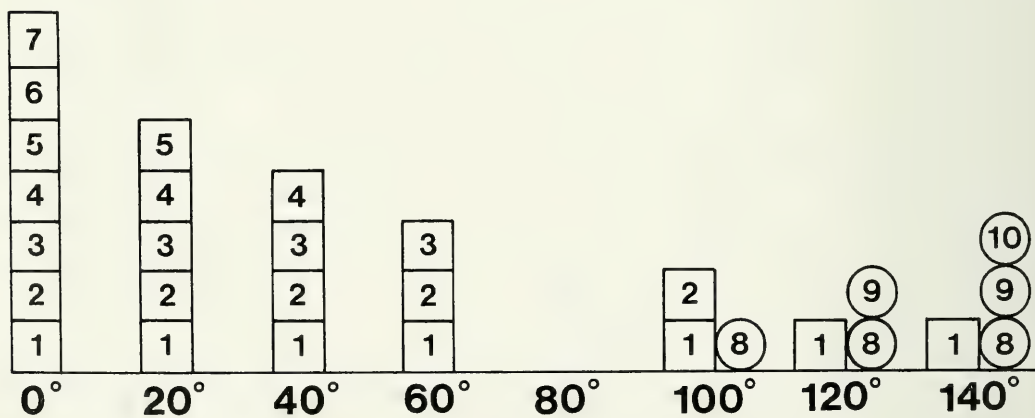


Fig. 2. Schema of the distribution of the west- (squares) and east- (circles) palaeartic species of *Cetema*. 1. *C. cereris* Fallén. 2. *C. myopina* Loew. 3. *C. elongata* Meigen. 4. *C. neglecta* Tonnoir. 5. *C. transversa* Collin. 6. *C. paramyopina* Collin. 7. *C. maroccana*, spec. nov. 8. *C. bispinosa* Duda. 9. *C. sulcifrons* Duda. 10. *C. necopinata* Nartshuk. On absciss axis grades of eastern longitude.

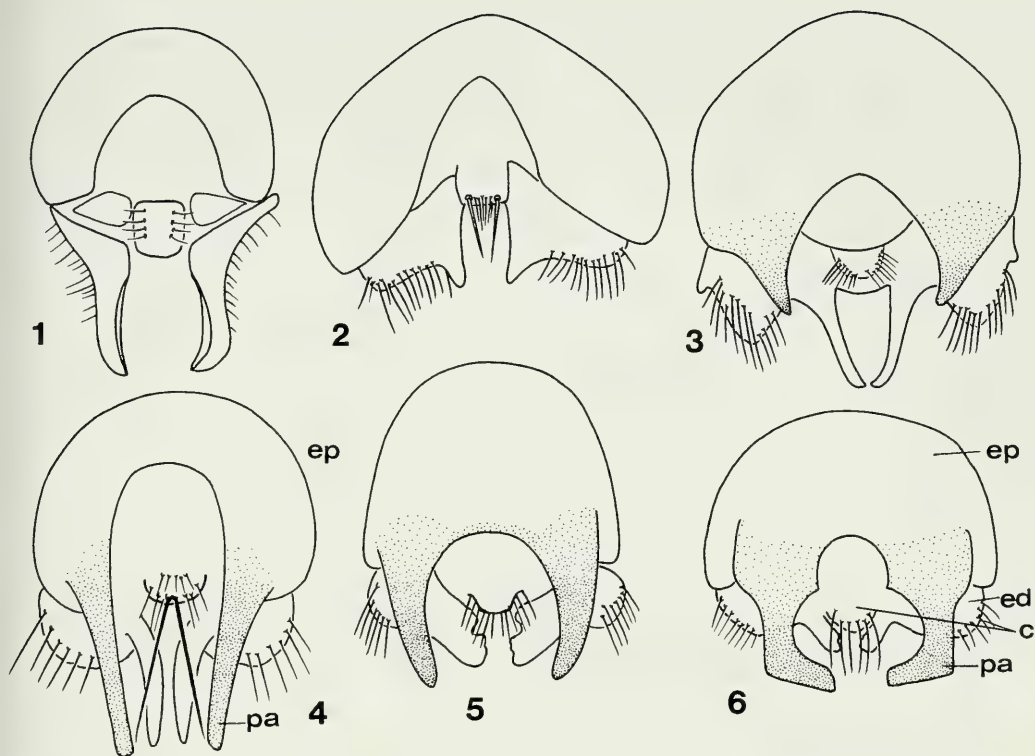


Fig. 3. Epandrium of *Cetema*. 1. *C. necopinata*. 2. *C. sulcifrons*. 3. *C. bispinosa*. 4. *C. maroccana*. 5. *C. elongata*. 6. *C. myopina*. c = mesolobus (fused cerci), ed = surstyli, ep = epandrium, pa = anterolateral processes

The structure of male genitalia of the new species is very characteristic. The epandrium has above rather long additional anterolateral processes under the surstyli, and also a long projection of the surstyli, similar to those of *C. bispinosa*. The new species is close to *C. bispinosa* in a comparative morphological row based on the structure of the male genitalia (Fig. 3). The most generalized species *C. necopinata* Nartshuk and *C. sulcifrons* Duda occur in the far east of Russia, in China and Japan.

Cetema maroccana, spec. nov.

Types. Holotype: ♂, Morocco, Haut Atlas, 2500 m, Oukaimeden, 27.-28.06.1987, leg. W. Schacht (ZSM). — aratypes: 1♀, same label as holotype (ZSM); 1♂, Atlas mal., Arround, 9.-12.06.1926, leg. Lindberg (ZMHU).

Description

Body length. 4.0-4.2 mm.

Head. Wider than long, frons in profile not strongly produced beyond anterior level of eye. Frons nearly square, yellow, covered by black hairs. Frontal triangle black except the yellow tip, shining smooth. Occiput black, pubescent and confluent with base of frontal triangle. Gena and face yellow with white hairs. Gena of moderate breadth, a little narrower than breadth of first flagellomer. First flagellomer slightly longer than broad, largely yellow with infuscate dorsal margin; arista all brownish. Palpi yellow in male, slightly darkened at tip in female.

Scutum. Relatively narrow, about 1.3 as long as wide, entirely black shining, except for yellow postpronotum which bears a small black spot. Scutellum yellow with blackish lateral side. Pleura yellow with usual large black spots. Bristles of scutum and scutellum black. Legs largely black, coxae

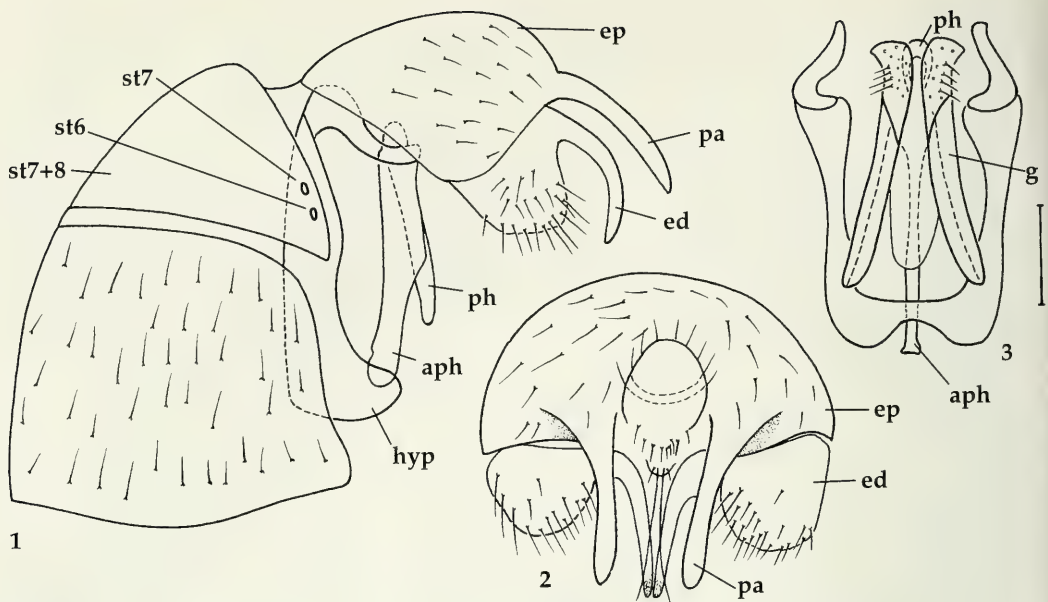


Fig. 4. Male genitalia of *C. maroccana*, spec. nov. 1. Tip of abdomen, lateral view. 2. Epandrium. 3. Hypandrium. aph = apodeme of phallus, g = gonite, hyp = hypandrium, ph = phallus, s 7+8 = synsclerite, st 6,7 = stigma, t = tergite. Other abbreviations see Fig. 3. Scale line: 0.1 mm.

and trochanters yellow; femora black except tip; tibia black except both ends, tarsi black except metatarsi of middle and hind legs, which are dark yellow. Middle tibia with usual black apical spur. Distal part of fore and middle tibia in male covered by long white hairs. Male femora more thickened than those in female. Wing of usual form, weakly tinged with grey; halter pale yellow.

Abdomen. Black, terminal segments in male weakly curving ventrally and somewhat clubbed in lateral view. Tergite 5 is a little longer than tergite 4 and tergite 4 is longer than tergite 3. Synsclerite 7+8 in male rather strong sclerotized, about $\frac{1}{2}$ as long as tergite 5.

Male genitalia (Fig. 4). Epandrium large black, except brownish base and tip of anterolateral processes. These processes long and tapering, curved in lateral view. Posterodistal notch of epandrium broadly and deeply emarginate in reversed U-shape. Surstyli located under anteroventral part of epandrium with long narrow projections, which are as long as processes of epandrium. Hypandrium much higher than wide. Gonites well differentiated, located in line, pregonites being much longer than postgonites. Postgonites with 4 setae and some pores. Basiphallus short, distiphallus membranous.

Comparison. From the palaeartic species of the genus three species and subspecies have dark coloured legs. *C. sulcifrons nigratarsis* Duda, described from Szechwan, China, is distinguished by the structure of the frontal triangle with central groove and absence of additional anterolateral processes of the epandrium in male genitalia (Fig. 3, 2). *C. cereris nigrifemur* Czerny, described from Spain, has a white arista in contrast of the dark arista in the new species. *C. monticola* Becker, described from the Pyrenees (Aix-les-Bains and Le Vernet according to Becker 1910), is distinguished by the presence of a long black bristle at the top of metatarsus of the middle legs. The new species is distinguished from *C. monticola* also by the dark tarsi of all legs and the long projection of the surstyli in the male genitalia. I have seen 1♂ (syntype ?) from Aix-les-Bains (France, Dept. Savoie) received from Naturhistorisches Museum Vienna/Austria and have not observed this long projection of surstyli. Some specimens of *C. cereris* and *C. myopina* from the Caucasus mountains collected by me in the Teberda nature reserve and in Daghestan above 1500 m, have also dark coloured legs, especially the females. The main distinguishing characters of the new species are in the structure of the male genitalia.

Acknowledgements

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